

## Attachment C

QUESTIONS SUBMITTED BY PBS FOR  
INTERVIEW ON TECHNOLOGY TRANSFER

SECRET



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1. HOW SERIOUS IS THE TECHNOLOGY FLOW TO THE USSR?

- OUR INTELLIGENCE ANALYSIS SHOWS THAT THE FLOW OF MILITARY-RELATED WESTERN TECHNOLOGY TO THE SOVIET BLOC IS A MUCH LARGER AND MORE SIGNIFICANT PROBLEM THAN ANYONE HAD PREVIOUSLY SUSPECTED.
- THE UNITED STATES AND ITS ALLIES HAVE TRADITIONALLY RELIED ON OUR TECHNOLOGICAL SUPERIORITY TO OFFSET THE NUMERICAL SUPERIORITY OF THE WARSAW PACT.
- BUT THAT TECHNOLOGICAL SUPERIORITY IS ERODING AS THE SOVIET UNION AND ITS ALLIES INTRODUCE MORE AND MORE SOPHISTICATED WEAPONS -- WEAPONS THAT ALL TOO OFTEN ARE DEVELOPED AND MANUFACTURED WITH THE DIRECT HELP OF WESTERN TECHNOLOGY.
- WITHOUT THIS WESTERN TECHNOLOGY SOVIET WEAPON SYSTEMS, SUCH AS THEIR ICBMS, SUBMARINES, AIRCRAFT AND TANKS, WOULD BE MUCH LESS CAPABLE AND THEIR DEFENSE INDUSTRY WOULD BE SIGNIFICANTLY LESS EFFICIENT.

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2. WHY DO THE SOVIETS NEED OUR TECHNOLOGY AND HOW DO THEY APPLY IT?

-- ALTHOUGH THE SOVIETS DO HAVE GOOD SCIENTISTS AND ENGINEERS, THEIR POLITICAL AND ECONOMIC SYSTEM IS NOT CONDUCTIVE TO INDIGENOUS TECHNOLOGICAL INNOVATION. LOOK AT THEIR CIVIL SECTORS THAT NEED WESTERN TECHNOLOGY JUST TO BE PRODUCTIVE:

- OIL AND GAS
- CHEMICALS
- AGRICULTURE
- AUTOMOTIVE, BOTH AUTOMOBILES AND TRUCKS.

-- THEIR MILITARY SECTOR'S CAPABILITY TO DEVELOP AND APPLY NEW TECHNOLOGY IS ESSENTIALLY NO DIFFERENT. IN FACT IT NEEDS EVEN HIGHER-LEVELS OF WESTERN TECHNOLOGY TO PRODUCE THE MODERN WEAPONS DEMANDED BY THEIR MILITARY CUSTOMERS.

-- SOVIET WEAPONS DESIGNERS AND DEFENSE MANUFACTURERS NEED ADVANCED WESTERN COMPONENTS, SUCH AS MICROELECTRONICS AND MODERN INDUSTRIAL EQUIPMENT AND TECHNOLOGY TO PRODUCE THE MODERN AND MORE SOPHISTICATED WEAPONS DEMANDED BY THEIR MILITARY LEADERS.

-- SOVIET INDUSTRY AND ITS SCIENTIFIC COMMUNITY ARE GENERALLY INCAPABLE OF PRODUCING THESE ADVANCED COMPONENTS AND EQUIPMENT IN THE TIME ALLOWED WITHOUT WESTERN TECHNOLOGICAL ASSISTANCE.

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- AS THE SOVIETS STRIVE TO KEEP UP WITH WESTERN MILITARY SYSTEMS THEY CONSTANTLY FIND THAT THEIR INDUSTRY DOES NOT HAVE THE MODERN TECHNOLOGY AND MANUFACTURING EQUIPMENT TO DO SO....SO THEY MUST ACQUIRE MORE FROM THE WEST.

---HOW DO THEY APPLY IT?

- THE SOVIETS ACQUIRE WESTERN TECHNOLOGY FOR SPECIFIC MILITARY PURPOSES, SELECTED BECAUSE OF ITS UNIQUE APPLICATION TO AN ONGOING DEFENSE PROJECT. THUS IT HAS DIRECT AND OFTEN IMMEDIATE BENEFIT.
- WESTERN WEAPONS DESIGNS, ACQUIRED MAINLY BY CLANDESTINE MEANS, ARE USED TO DEVELOP AND IMPROVE THE PERFORMANCE OF SIMILAR SOVIET WEAPONS, SUCH AS GUIDED MISSILES AND FIGHTER AIRCRAFT. KNOWLEDGE CONCERNING HOW THESE WESTERN WEAPONS OPERATE ALSO HELP THE SOVIETS DESIGN COUNTERMEASURES AS WELL.
- WESTERN COMPONENT TECHNOLOGY SUCH AS MICROELECTRONIC CIRCUITS ARE ALSO ILLEGALLY ACQUIRED AND COPIED FOR USE IN SOVIET WEAPONS. THE DESIGN AND MANUFACTURE OF SUCH ADVANCED COMPONENTS OFTEN REQUIRE THE SOVIETS TO ACQUIRE 100'S OF PIECES OF EMBARGOED MANUFACTURING EQUIPMENT THRU ILLEGAL TRADE CHANNELS.
- WHEN THE SOVIET DEFENSE MANUFACTURES NEED MODERN PRODUCTION EQUIPMENT -- WHICH IS OFTEN EMBARGOED -- THEY PREFER TO ACQUIRE A FEW ITEMS AND THEN ILLEGALLY COPY ALL THEY NEED. IF THEY ARE UNABLE TO DO THIS THEN

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THEY'LL MOUNT A MAJOR ILLEGAL TRADE ACQUISITION EFFORT TO GET ALL THEY NEED.

- THE SOVIETS HAVE ACQUIRED LARGE VOLUMES OF WESTER S&T LITERATURE, FROM BOTH OUR INDUSTRIAL AND ACADEMIC COMMUNITIES. THERE ARE OVER 100,000 PEOPLE INVOLVED IN THE ACQUISITION, TRANSLATION, AND DISSEMINATION OF THIS WESTERN S&T INFORMATION THROUGHOUT THE USSR. IT CONTRIBUTES SIGNIFICANTLY TO THE USSR'S TECHNOLOGICAL BASE AND IS USED THROUGHOUT THEIR EDUCATION, RESEARCH, AND MILITARY DESIGN COMMUNITIES. IT ALSO SERVES AS THE MEANS OF IDENTIFYING NEW AREAS FOR ACQUISITION.

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3. HOW DO THEY ACQUIRE IT --- THAT IS, ARE THEY TURNING INCREASINGLY TO  
ILLEGAL MEANS?

- THE SOVIETS AND THEIR WARSAW PACT ALLIES HAVE OBTAINED LARGE AMOUNTS OF MILITARILY SIGNIFICANT WESTERN TECHNOLOGY AND EQUIPMENT THRU LEGAL AND ILLEGAL MEANS. THEY HAVE USED:
  - THEIR STUDENTS AND THEIR S&T AGREEMENTS WITH THE WEST TO FACILITATE ACCESS TO THE NEW TECHNOLOGIES EMERGING FROM OUR GOVERNMENT AND UNIVERSITY LABS;
  - THEIR SCARCE HARD CURRENCY TO ILLEGALLY PURCHASE CONTROLLED EQUIPMENT AS WELL AS THAT WHICH IS UNCONTROLLED BUT HAS MILITARY-INDUSTRIAL APPLICATIONS; AND
  - THEIR INTELLIGENCE SERVICES TO ACQUIRE THOSE WESTERN TECHNOLOGIES THAT ARE CLASSIFIED AND EXPORT CONTROLLED OR WHICH ARE PROPRIETARY BUT OUR COMPANIES DO NOT WISH TO SELL.
- TODAY THIS SOVIET EFFORT IS MASSIVE, WELL PLANNED, AND WELL MANAGED. IT IS A NATIONAL-LEVEL PROGRAM APPROVED AT THE HIGHEST PARTY AND GOVERNMENT LEVELS.
- THIS PROGRAM ACCORDS TOP PRIORITY TO THE MILITARY AND MILITARY-RELATED INDUSTRY, AND MAJOR ATTENTION IS ALSO GIVEN TO THE CIVILIAN SECTORS OF SOVIET INDUSTRY THAT SUPPORT MILITARY PRODUCTION.

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- WE KNOW FROM OUR INTELLIGENCE THAT WESTERN WEAPONS DESIGNS AND MILITARY TECHNOLOGIES ARE PRECISELY IDENTIFIED FOR ACQUISITION.
- SOVIET GOVERNMENT ORGANIZATIONS RESPONSIBLE FOR EAST-WEST TRADE, DOMESTIC AND INTERNATIONAL SCIENTIFIC ACTIVITIES, AND THEIR INTELLIGENCE SERVICES ARE APPROPRIATELY TASKED.
- MANY OF THEIR EAST EUROPEAN COUNTERPARTS ALSO ASSIST THEM IN THESE ACQUISITION EFFORTS WHICH ARE CONDUCTED ON A WORLDWIDE BASIS.
- IT IS THE WELL ORGANIZED AND WELL COORDINATED USE OF ALL THESE VARIOUS ORGANIZATIONS THAT HAS MADE THE SOVIET PROGRAM TO ACQUIRE WESTERN TECHNOLOGY SO SUCCESSFUL.
- THE MOST SIGNIFICANT SOVIET MILITARY TECHNOLOGY ACQUISITIONS HAVE BEEN IN THE FORM OF WEAPONS DESIGNS, MANUFACTURING BLUEPRINTS AND DRAWINGS, AND CRITICAL COMPONENTS. THESE ACQUISITIONS HAVE RESULTED MAINLY FROM TRADITIONAL CLANDESTINE INTELLIGENCE OPERATIONS BOTH IN THE US AND ABROAD.
- THEY HAVE ALSO BEEN QUITE SUCCESSFUL IN THE ACQUISITION -- MAINLY THROUGH ILLEGAL MEANS -- OF ADVANCED MILITARY RELATED PRODUCTION TECHNOLOGY RANGING FROM MICROELECTRONIC MANUFACTURING, TO MISSILE CASE FILAMENT WINDING AND HIGH ENERGY LASER MIRRORS.

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-- FROM THE HUNDREDS OF CASES OF TRANSFERS OF MILITARILY SIGNIFICANT TECHNOLOGY THAT WE HAVE STUDIED, WE HAVE FOUND THAT SOME 70% ARE THE RESULT OF SOVIET BLOC INTELLIGENCE EFFORTS, INVOLVING EITHER OVERT OR CLANDESTINE COLLECTION ACTIVITIES.

-- THE REMAINING 30% OR SO IS ALSO VERY IMPORTANT BUT IT IS ACQUIRABLE THRU OPEN AND LEGAL MEANS SUCH AS THE PURCHASE OF UNCONTROLLED EQUIPMENT, OPEN SOURCE PUBLICATION PROCUREMENT, AND STUDENT EXCHANGES.

--- ARE THEY TURNING INCREASINGLY TO ILLEGAL MEANS?

-- YES, AS WE SHUT DOWN SOME OF THE TRANSFER CHANNELS WE ARE SEEING THE SOVIETS SHIFT FROM OVERT TO ILLEGAL MEANS AND FROM ONE COUNTRY TO ANOTHER.

-- THE SOVIETS ARE VERY PRACTICAL AND WILL USE THOSE ACQUISITION METHODS THAT ARE APPROPRIATE AND NECESSARY LEGAL OR ILLEGAL, AND THEY ARE VERY GOOD AT BOTH.

-- OUR ANALYSIS OF PAST TRANSFER ACTIVITIES IDENTIFIED SEVERAL TRENDS DURING THE 1970'S THAT WE BELIEVE HAVE SIGNIFICANT IMPLICATIONS FOR THE 1980S:

-- FIRST, SINCE THE EARLY 1970S, THE SOVIETS AND THEIR EAST EUROPEAN ALLIES HAVE BEEN INCREASINGLY USING THEIR NATIONAL INTELLIGENCE

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- SERVICES TO ACQUIRE WESTERN CIVILIAN TECHNOLOGIES -- FOR EXAMPLE, AUTOMOBILE, ENERGY, CHEMICALS AND EVEN CONSUMER ELECTRONICS;
- SECOND, SINCE THE MID-1970S, SOVIET AND EAST EUROPEAN INTELLIGENCE SERVICES HAVE BEEN EMPHASIZING THE COLLECTION OF MANUFACTURING-RELATED TECHNOLOGY, IN ADDITION TO WEAPONS TECHNOLOGY; AND
- THIRD, SINCE THE LATE 1970S, THERE HAS BEEN INCREASED EMPHASIS BY THESE INTELLIGENCE SERVICES ON THE ACQUISITION OF NEW WESTERN TECHNOLOGIES EMERGING FROM UNIVERSITIES AND RESEARCH CENTERS.
- THE COMBINED EFFECT OF THESE TRENDS IS A HEAVY FOCUS BY SOVIET BLOC INTELLIGENCE ON THE COMMERCIAL SECTORS IN THE WEST:
- SECTORS WHICH ARE NOT NORMALLY PROTECTED FROM HOSTILE INTELLIGENCE SERVICES;
- AND WHOSE INDUSTRIAL SECURITY IS NO MATCH FOR HUMAN PENETRATION OPERATIONS OF HOSTILE SERVICES.
- BUT, THE MOST ALARMING ASPECT OF THIS COMMERCIAL FOCUS BY SOVIET BLOC INTELLIGENCE SERVICES IS THAT AS A RESULT OF THESE OPERATIONS THE SOVIETS HAVE GAINED, AND CONTINUED TO GAIN, ACCESS TO THOSE ADVANCED TECHNOLOGIES THAT ARE LIKELY TO BE USED BY THE WEST IN ITS OWN FUTURE WEAPONS SYSTEMS.

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- CONSEQUENTLY THE US AND ITS ALLIES WILL NEED TO ORGANIZE BETTER TO PROTECT NOT ONLY THEIR MILITARY-RELATED TECHNOLOGY CENTERS BUT THEIR INDUSTRIAL, COMMERCIAL AND SCIENTIFIC COMMUNITIES. AT THE SAME TIME WE WILL HAVE TO DEVELOP BETTER INDUSTRIAL SECURITY PRACTICES TO COPE WITH THE SOVIET BLOC INTELLIGENCE THREAT TO OUR COMPANIES, BOTH THOSE IN THE US AND SUBSIDIARIES ABROAD.
  
- FURTHERMORE, IT MUST BE RECOGNIZED THAT EXPORT CONTROLS ARE NOT DESIGNED TO STOP HOSTILE INTELLIGENCE SERVICES OR INDUSTRIAL ESPIONAGE. THEY ARE INTENDED TO CONTROL THE FLOW OF LEGAL SALES.
  
- OUR INTELLIGENCE SHOWS THAT WHEN WE HAVE GOOD ENFORCEMENT, EXPORT CONTROLS DO WORK: THEY SLOW DOWN AND IN SOME CASES PREVENT THE ACQUISITION OF DEFENSE-RELATED INDUSTRIAL CAPABILITIES BY SOVIET BLOC COUNTRIES.
  
- FOR EXAMPLE, IN THE CASE OF COMPUTERS, IT HAS TAKEN THE SOVIETS MUCH LONGER TO ACHIEVE THE CAPABILITY THEY NOW HAVE. AND, I MIGHT ADD THAT IF THE US GOVERNMENT HAD HAD A PROGRAM "EXODUS" IN THE MID-1970S I BELIEVE THE SOVIETS WOULD NOT HAVE THE MILITARY MICROELECTRONICS CAPABILITY THEY HAVE TODAY,
  
- EFFECTIVE EXPORT CONTROL ENFORCEMENT FORCES THE SOVIETS TO USE THEIR RESOURCES TO STEAL THE TECHNOLOGY, DIVERT IT INTO ILLEGAL TRADE CHANNELS AND ACQUIRE IT WITHOUT FULL CUSTOMER SUPPORT, THUS MAKING THE TRANSFER LESS EFFECTIVE.

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- AS A CONSEQUENCE OF ALL OF THIS WE BELIEVE THE US AND ITS ALLIES ARE LIKELY TO EXPERIENCE INCREASING COUNTERINTELLIGENCE AND RELATED INDUSTRIAL SECURITY AND EXPORT CONTROL PROBLEMS DURING THE 1980S.
  
- WE AND OUR ALLIES WILL HAVE TO ORGANIZE MORE EFFECTIVELY THAN WE HAVE IN THE PAST IF WE ARE TO BE SUCCESSFUL IN COMBATTING THE SOVIET BLOC'S WELL COORDINATED EFFORT TO ACQUIRE OUR TECHNOLOGIES.

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4. HOW GREAT A PRIORITY DOES THIS ACQUISITION APPEAR TO BE FOR THE SOVIETS?

- SINCE AT LEAST THE 1930S, THE SOVIET UNION HAS DEVOTED VAST AMOUNTS OF ITS FINANCIAL AND MANPOWER RESOURCES TO THE ACQUISITION OF WESTERN TECHNOLOGY THAT WOULD ENHANCE ITS MILITARY POWER AND IMPROVE THE EFFICIENCY OF ITS MILITARY MANUFACTURING INDUSTRY. TODAY THE ACQUISITION OF WESTERN TECHNOLOGY IS A VERY HIGH PRIORITY FOR THEM.
- A FORMER SOVIET INTELLIGENCE OFFICER HAS TOLD US THAT THE ACQUISITION OF WESTERN TECHNOLOGY FOR THEIR MILITARY INDUSTRY HAD THE HIGHEST OPERATIONAL PRIORITY. HE FURTHER STATED THAT THE REASON FOR THIS WAS THAT THE WESTERN TECHNOLOGY SAVED THE SOVIET DEFENSE INDUSTRY 100'S OF MILLIONS OF RUBLES IN R&D COSTS EACH YEAR.
- IN ADDITION TO THESE R&D SAVINGS THIS WESTERN TECHNOLOGY CUTS YEARS OFF OF THE NORMAL WEAPONS DEVELOPMENT CYCLE. THIS IS A SIGNIFICANT BENEFIT ITSELF IN THE SOVIET'S EFFORT TO KEEP UP WITH WESTERN MILITARY CAPABILITIES.
- A GOOD EXAMPLE OF THIS IS THE US SIDEWINDER AIR-TO-AIR MISSILE. STARTING WITH A SET OF WESTERN MANUFACTURING PLANS THE SOVIETS WERE ABLE TO SAVE SOME 7 YEARS OF R&D TME AND ABOUT \$115M IN R&D COSTS.
- THE SOVIETS PRODUCE A NUMBER OF CAPABLE MODERN WEAPONS TODAY, INCLUDING ICBMS, FIGHTERS, AND TANKS. BUT AS THE WEST CONTINUES TO

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IMPROVE ITS MILITARY CAPABILITIES WITH NEW TECHNOLOGY, THE SOVIET MILITARY PLANNERS RECOGNIZED THEY NEED HIGHER PERFORMANCE WEAPONS TO COMBAT THE NEW WESTERN SYSTEMS.

- THEY OFTEN FIND THEY NEED ADVANCED WEAPONS COMPONENTS OR MATERIALS, SUCH AS MICROPROCESSORS AND CARBON COMPOSITES, TO ACHIEVE THE WEAPONS PERFORMANCE THEIR MILITARY PLANNERS DESIRE.
- BECAUSE THEIR OWN TECHNOLOGY BASE AND INDUSTRIAL CAPABILITIES CONTINUE TO LAG THOSE OF THE WEST THEY CONSTANTLY FIND THEMSELVES IN NEED OF EMBARGOED AND PROPRIETARY WESTERN TECHNOLOGY.
- TO KEEP UP WITH WESTERN TECHNOLOGY AND WEAPONS PERFORMANCE THEY HAVE LITTLE CHOICE BUT TO ACQUIRE THEIR TECHNOLOGY BY WHATEVER MEANS THEY CAN,.....OR
- OR FALL BEHIND WITH LOWER WEAPONS PERFORMANCE AND CONCOMITANT DEFENSE PRODUCTION COSTS FOR LARGER NUMBERS OF WEAPONS.
- FURTHERMORE, WE BELIEVE THE LESSONS LEARNED BY THE SOVIETS IN THE RECENT MIDDLE-EAST FIGHTING AND FROM THE USE OF ADVANCED WESTERN WEAPONS IN THE FALKLAND WAR HAVE HEIGHTEN THE PRIORITY THAT THE USSR PLACES ON THE ACQUISITION OF WESTERN MILITARY TECHNOLOGY.

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5. WHAT ARE WE DOING TO PREVENT (SOVIET ACQUISITIONS OF SENSITIVE TECHNOLOGY)?

-- THE INTELLIGENCE COMMUNITY'S ROLE IN THE GOVERNMENT-WIDE EFFORT TO STOP SOVIET ACQUISITION OF SENSITIVE US TECHNOLOGY IS THREE FOLD:

-- FIRST, WE PROVIDE FOREIGN INTELLIGENCE AND ANALYTICAL SUPPORT TO THE POLICY AND DECISIONMAKING ELEMENTS IN THE GOVERNMENT RESPONSIBLE FOR TECHNOLOGY TRANSFER MATTERS;

-- SECOND, WE PROVIDE FOREIGN INTELLIGENCE SUPPORT TO THE US EXPORT CONTROL COMMUNITY AND ITS ENFORCEMENT EFFORTS; AND

-- THIRD, BECAUSE OF THE HEAVY INVOLVEMENT OF SOVIET BLOC INTELLIGENCE SERVICES IN THE TECHNOLOGY TRANSFER ARENA, WE ARE USING OUR COUNTERINTELLIGENCE CAPABILITIES AS A COUNTERMEASURE. FURTHERMORE, WE HAVE ALERTED OUR ALLIES TO THIS ASPECT OF THE PROBLEM AND HAVE ENCOURAGED THEM TO TAKE APPROPRIATE COUNTERINTELLIGENCE ACTIONS AS WELL.

-- FROM OUR ALL-SOURCE VIEW OF THIS VERY SERIOUS NATIONAL SECURITY PROBLEM IT IS BECOMING INCREASINGLY CLEAR THAT WE AND OUR ALLIES WILL HAVE TO ORGANIZE MUCH MORE EFFECTIVELY THAN WE HAVE IN THE PAST TO COPE WITH THE SOVIET BLOC'S ACQUISITION PROGRAM. IT WILL REQUIRE A COORDINATED WESTERN COUNTERINTELLIGENCE EFFORT, GREATLY IMPROVED INDUSTRIAL SECURITY MEASURES, ENHANCED EXPORT CONTROL ENFORCEMENT, AND PROTECTION OF OUR CIVILIAN INDUSTRIES AND SCIENTIFIC COMMUNITIES FROM HOSTILE INTELLIGENCE SERVICES.

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